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THE PROBLEM OF PSYCHOLOGICAL DETERMINISM

THE tendency of modern psychology, in so far as it gives the problem of the freedom of the will any consideration, either directly or by implication, may safely be described as deterministic. In its aim to become a science, an exact science if possible, and to reduce its phenomena to strict uniformity for purposes of description and explanation, it has been led to account for all states of consciousness, including those termed voluntaristic, in terms of previous mental conditions. Empirical psychology will doubtless gladly leave the question of libertarianism open to ethics and metaphysics. Here it does not attempt to dogmatize, but for its own particular province the problem has ceased to be important, for it has ceased to exist. Psychology as a science should recognize nothing but a continuous stream of psychic states, which follow each other with a uniformity and necessity which find their counterpart in the causal relations of the phenomena of the physical world. This relation between states of consciousness is held to be an empirical fact, not a metaphysical hypothesis, and hence any assumption in regard to freedom passes from the realm of science to that of speculation, while, on the other hand, determinism is as self-evident in the world of spirit as it is in that of matter. The attitude of the psychologist of this way of thinking is perfectly clear. For him there can be no transcendent faculty of the will. Voluntary states are elements or tendencies in the totality of the consciousness of any given moment and, as parts, are not superior to the whole. If the total conscious state is determined, each part of it must fall under a like necessity. We can no better speak of a freedom of the will than we can of a freedom of imagination, desire or conception. Each conscious state owes its existence entirely and completely to the sum total of preceding psychic states. This is true even of those states termed attentive. Such a suggestion as that of Professor James that the voluntary effort to attend may be an original psychic force, and that freedom to will may be freedom to attend, will hardly be received by the thoroughgoing empiricist with favor. Attention is merely

one phase of a given conscious totality; is itself a product of antecedent conditions and in no way rises superior to the conscious elements of which it is a product. To make it an independent power would be to return to the old 'faculty psychology,' and make a metaphysical entity do business in a world of empirical relations.

The position above set forth may seem to have the merits of strict empiricism, and to avoid all metaphysical assumptions by resting simply on the basis of pure fact. To the writer, however, just the reverse seems true. Psychology, far from being compelled to assert determinism from the standpoint of empiricism, should hold to just the opposite. To maintain, or even tacitly to assume, that determinism is the law governing psychic phenomena, psychology must transcend its province as a science of mental life and become for the time being metaphysics, or it must abandon psychology as such and become physiology pure and simple. This assertion the following discussion aims to substantiate.

To get a clearer view of the position of psychology as deterministic we may be justified in turning our attention for a moment to the material sciences, and notice on what their deterministic assumptions are founded. The physical universe is held to be a realm of complete continuity, in which all phenomena are to be entirely explained in terms of other phenomena in such a way that an exact quantitative equivalence shall hold between the various members of the physical series. Any given occurrence is capable of being completely accounted for in terms of other occurrences, which are regarded as causes or conditions. It is true that this world of physical change is infinite and we may never be able in any given instance to find all the causes and conditions attending any particular phenomenon, but the inability is the fault merely of our powers of observation and experimentation. The causes and conditions all exist as facts of an actual or possible experience. In other words, the material universe constitutes a closed totality. There can be no additions from without, no loss from within. All natural phenomena demand for their explanation a completely continuous and self-contained series of like phenomena, quantitatively measurable and reducible to an ultimately common description. Physical necessity is based on the assumption that the cause of any given event in the realm of matter is to be found only within the physical universe.

"Physical science," says Stout, "has shown the thoroughgoing and continuous interconnection of all material events as a part of a single mechanical system. There is nowhere any room within the mechanical series for the interposition of conditions which are not mechanical." This conception of natural science makes it essentially deterministic, not merely because there is a uniform sequence

of phenomena, but also because there is held to exist an exact equivalence of relation between all causally connected phenomena. This assumption is not metaphysical, but empirical, for although not completely demonstrated, the relation assumed to exist is one that is within the world of possible experience—all phenomena of the physical universe are to be explained in terms of themselves.

Now when we turn our attention to the psychical world do we find the same conditions as those which prevail in the physical? If we are misled by analogies we may at first answer this question in the affirmative. Stout holds that 'the present conscious process is throughout conditioned by the past conscious process.' James asserts that 'states of consciousness are all that psychology needs to do her work with.' Conscious phenomena are generally spoken of as constituting a continuum, and psychology attempts to formulate laws which govern the relation between various conscious phenomena. If we mean by the continuity of consciousness simply that the present state as conscious is not absolutely separated from that which has gone before, and that the 'now' is modified by the preceding conscious moment, that 'the changes from one moment to another in the *quality* (italics mine) of consciousness are never absolutely abrupt,'[1] such a continuum can never be denied. Indeed, it is the revelation of immediate experience, and to doubt it would be to doubt consciousness itself. Without it all mental life would cease, and we would be reduced to psychological atomism. If, however, we mean by psychical continuity to designate such a relation as that which science assumes to exist in the physical world, we will at once be met with a serious difficulty. This a further examination of the concept of physical continuity will make evident.

In the first place, all physical phenomena are interrelated. There is no one part of the Cosmos which is not in intimate union with all other parts, but in the psychical universe each individual is a monad, standing in metaphysical isolation from all other individuals as far as his conscious life is concerned. His psychical activity must begin and end with his individuality. We get in the world of consciousness numbers of psychic entities that have no direct connection through purely psychic processes with other psychic entities. The consciousness of A can not pass over into the consciousness of B.

Again, no conscious process in a given individual can be entirely explained by previous conscious processes. There is always an element of newness and unexpectedness in each moment of our mental life, even when the train of thought is logical. This element becomes more pronounced in our ordinary loose processes of thinking.

Again, when a conscious state is suddenly broken in upon by a

[1] Quoted from James, 'The Principles of Psychology.'

sensation, the resulting conscious state is not to be deduced from anything that has gone before. Of course, we can agree with Professor James that between the consciousness of silence and that of a thunder-clap immediately following there is a relation in which there is an awareness of the preceding state and a contrast with the following, but the continuity that exists is not one which finds in the former the existence of the latter. The incoming state can not be accounted for in terms that do not transcend its consciousness. But if in the physical world we could find an event that was so thrust in from the outside, we would be obliged at once to give up our belief in the absolute continuity of this world as phenomena, and hence in the determinism of all its parts.

Finally, even if we could find in the life of the normal, adult, human being a continuity of his mental states as absolute as that which exists in the world without, this continuity would be set within narrow limits. It could not extend back before birth nor continue out beyond death. It appears and disappears absolutely as far as empirical psychology is concerned. Its existence before birth and after death is a matter for metaphysics to discuss, not for science to assume. Mental continuity, then, empirically considered, is but for a brief time, while the continuity of physical phenomena exists throughout all time.

It is quite evident, then, that when we consider consciousness by itself it presents many lacunae. It may be replied that natural phenomena, too, have gaps. On this point Wundt holds that generally we are more ready to assume breaks in the psychic series, because our subjective experience acquaints us with such breaks. This is the case, however, only because we hold to the principle of absolutely continuous physical laws, and hence fill out the wanting parts in the series of natural phenomena. The facts considered without such presuppositions make it doubtful if there are more gaps in the psychical than in the physical series. Be this as it may, it is to be noticed that the lacking elements supplied in the physical series are phenomena of the same character as those actually present, and entirely within the realm of possible experience, while the psychic series can be made continuous only either by introducing phenomena from an entirely different world, or by transcending the realm of known phenomena and passing over into the world of things-in-themselves. This the following discussion will point out.

In attempting to piece out the conscious continuum two means are at hand for the empirical psychologist, neither of which, however, he should be willing to employ. The one reduces psychology to physiology by assuming a physiological origin for all conscious states, and the other passes over into the realm of things-in-them-

selves by setting up the hypothesis of subconscious and unconscious mental states.

The physiological road many of our leading psychologists rightly refuse to travel.

"If the course of mental events is not regulated by discoverable uniformities capable of being interconnected so as to form a coherent system, the psychologist has nothing to do. It is incorrect to say that on this assumption his science becomes absorbed in physiology. It does not become absorbed; it simply ceases to exist in any form whatever." (Stout.)

"Psychology," says Titchener, "deals with none but mental processes." With this point of view Wundt is also in accord. He holds that not the remotest account of the psychological development of our ideas is given when we refer the psychical synthesis to physical cause. Münsterberg asserts that the brain excitations are never the object of psychology. The real value and meaning of conscious life vanishes when we attempt to account for it in physiological terms.

The psychologist who thus seeks the aid of physiology has not only abandoned psychology as such, but he has plunged himself into metaphysical difficulties as well if he attempts to give any idea of the relationship between mind and body, which his hypothesis demands. Whether he be an automatist or an interactionist, he is at the same time a metaphysician and not an empiricist.

To avoid the difficulties set forth above many psychologists are willing to adopt the hypothesis of parallelism in one of its various forms, and to accept the existence of the subconscious and unconscious in mental life. It is true that all are not willing to agree to this view. "Unconscious psychic phenomena," says Münsterberg, "do not exist." And Wundt declares that the assumption is something with which psychology has nothing to do. Stout, however, believes that unconscious links must be supplied for conscious processes, and Sully says, "If we attempt to account for psychical phenomena solely by means of psychical processes we seem almost compelled to resort to their unconscious operation." Paulsen writes,[2] "Are psychical processes always conscious processes, or are there also unconscious elements in psychical life? As far as I can see, no psychology can help but affirm the latter question; it must be confessed that the conscious elements make up but a small portion of psychic life."

It is not the purpose in the narrow limits of this paper to contend for the truth or falsity of this assumption, but simply to point out that the hypothesis in question is metaphysical and not empirical.

[2] 'Introduction to Philosophy,' tr. by Thilly, pp. 120–121.

All postulates of science should be within the realm, not indeed of actual, but of possible experience. The ultimate constitution of matter has never indeed been empirically discovered, but the atomic theory, and others of a like nature, are, as Strong points out, not beyond the possibility of actual observation; but an unconscious mental state can never be experienced either in the individual possessing it or in another. When it is experienced it has ceased to be unconscious. Not only can it never be experienced; it can further never be set forth in terms of any imagined experience. We can conceive consciousness only as we possess it ourselves. Paulsen attempts to escape the difficulty involved, in conceiving an unconscious mental state not as 'an absolutely non-conscious, but only a less conscious state, a conscious state that is perhaps completely imperceptible.' Passing over the difficulty of what a completely imperceptible conscious state may be in terms of mental life, we are confronted with the question as to what constitutes the nature of the less-conscious, if that is what we are to understand by the term subconscious. Does its reality exist in its consciousness, or in its lack of consciousness? Clearly, as far as it is known, in the former, and yet the subconscious is supposed to be effective in the mental series, in part at least, in that element which it possesses that is not conscious. To use the term partly conscious or confusedly conscious will not help us. We know it only as conscious; the non-conscious element must remain forever a negative concept.

Admitting, however, for the sake of argument the legitimacy of the conception of the subconscious in empirical psychology, we are by no means out of our difficulty. The subconscious, or partly conscious, is not sufficient to bridge all the gaps in the conscious continuum. It may account for our organic feelings for example, but it can not explain memory, and certainly not sensation on the psychic side. Here we must either resort to physiology, or assume mental states that are absolutely non-conscious as far as the individual is concerned. Such states are clearly unknown and unknowable, according to any meaning which we can attach to the term knowledge. They are the transcendent X, the absolute thing-in-itself, the legitimacy of which may be questioned in metaphysics, and which certainly can find no place in empirical science. "For psychology," says Wundt, "the unconscious is a transcendent concept."

We now come to the final question of this discussion. Can empirical psychology, as mere psychology, hold to a determinism which owes its existence either to metaphysical hypothesis or to a physiological interpretation of the mental life. The answer must be decidedly in the negative. Consciousness as such presents a multiplicity of states that, while related, are incapable of being joined

in an absolutely continuous series in which every part is related to every other in terms of a quantitative equivalence. If you take away these two conceptions of continuity and quantitative equivalence you have nothing left of the notion of determinism from the empirical standpoint. Necessity demands that between phenomena shall exist not mere uniformity of sequence, but also a necessary bond. This necessary bond, as far as science knows it, is expressed in terms of equivalence. *The effect must equal the cause.* There may of course be a metaphysical notion of necessity as there is of freedom, but with this psychology as a science has nothing to do. The laws that govern its phenomena, as far as it knows them, are those of the mental life, in which efficient causality is replaced by final causality, in which relations of quantitative equivalence are replaced by those of worth. We are no longer in the world of mechanical necessity, but in the realm of values. The most significant fact of consciousness is that it chooses, and its clearest act of choice is found in its voluntary states.

Empirical psychology then must affirm the freedom of the will. It may leave to metaphysics the ultimate question of freedom and determinism, but for itself as psychology it knows no mechanical necessity. Man may be metaphysically determined; he is empirically free.

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THE LAW OF CONGRUOUSNESS AND ITS LOGICAL APPLICATION TO DYNAMIC REALISM

IN recent articles by Professors Tawney, and Bawden, we have had illuminating discussions of utilitarian epistemology and pragmatic methodology.[1] It is possible that some of those commonly classed as pragmatists would repudiate the term, nevertheless tendencies other than that specifically indicated by this much-abused term are so closely bound up with it that the sympathetic energic and objectivizing movement forms a very genuine bond. If the present paper seems to magnify differences, it is certainly not because the writer fails to appreciate the points held in common by 'pragmatic,' 'genetic' and 'dynamic' thinkers.

Utilitarian epistemology seems to be content with the conception that 'the laws of matter and of life are the laws of our needs.' To this all may agree whether utilitarians or not. But it is a violent

[1] THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, Vol. I., Nos. 13 and 16.

wrench, alike to logic and common sense, to take the further step, and declare that the laws of matter and of life are what they are *because of our needs.* The appeal to biology is unwarrantable here. What biology and physics suggest is rather that you and I and the universe have grown up together in reciprocal relation. It is, in a sense, true that the universe (as I perceive it) corresponds to my needs, but this is an egocentric and psychological view. As a philosopher I recognize that I am what I am in response to the needs of the universe, and the universe is bigger than I. It is true that the stone attracts the earth and molds its figure and determines its weight to an extent proportional to the respective masses of the two bodies, but this is wholly overshadowed by the influence of the earth on the stone.

Now what we mean by dynamic realism stands for the view that all parts of the universe are reciprocally bound together because they act together and have grown to be what they are in organic unity of development. Pragmatism is then justifiable in so far as it refers to a methodological concept. That things do work together and our needs are satisfied when a certain set of postulates are conformed to, is, in so far forth, evidence of the correctness of the postulates, but this is only evidence that by this means we have discovered a part of the organic harmony covered by the law of congruousness. The theory is not true *because* it satisfies our needs, but the fact that it satisfies our needs *is evidence* that the theory fits into the organism.[2]

Realism is not satisfied with one aspect only of being, but accepts the fact of reaction as evidence of the *other* by the reaction of which with self realization becomes possible. In what follows a few logical preliminaries are set in organic relation without expecting to add anything to the content of our thought. To the objection that reference to recent logical discussions is wanting we have always, for want of a better, the reply of the Musselman who destroys all books but the Koran.

First, then, as to the law of cause and effect. The naïve mind recognizes that certain causes produce certain effects, and that is all there is about it. If interrogated as to how he knows that one event causes another, he will appeal to uniformity in sequence. The cause invariably preceded the effect. But a little reflection reveals the fallacy of *post hoc, ergo propter hoc.* In a shooting-gallery, a deer, a camel, a dog and several ducks follow each other across the field of view in unvarying succession. The dog is not the cause

[2] With regard to current pragmatism, Professor Tawney well says: "Facts, meanings, and needs are abstractions from concrete experience . . . they develop together by a law of their own activity," *l. c.*, p. 344.

of the deer. The running of the dog is not the cause of the running of the deer. They are related by a common bond to an endless chain which moves and imparts its motion to them both alike. But the movement of the chain is due to that of a sprocket wheel set in motion by the explosion of gasoline in a suitable engine. The boy who first sees the bowing trees and then feels the wind, fancies that the trees produce the wind.

An attempt at a scientific theory of causation catches at the analogy of the endless chain. All the activities in this world have their coherence in one common organic unity. One part is necessarily related to every other, and one or other of two events may be looked upon as cause or effect at will. Although, to man, experience becomes a succession of events, we know that this is not so, but that there is a continuous whole of activity. We, it is true, catch only the occasional flash of the lightning, but we know that the electric discharge which it intermittently reveals to us is a continuous process. So of all reality; it is a part of a continuous whole, one part is not possible without all. The geometry of loci admits of no hiatus in the trajectory of its forces.

Our minds fill out the observed intervals in experience, not by interpolating in them the intervening modes, which, not having been in experience, can not be known, but by postulating a *nexus* which we term cause. The term is practically useful but it is philosophically faulty if not false.

If by one event causing another we mean that the existence of the one event prior to and contiguous to the second is sufficient reason for the second event, which then follows as a matter of course therefrom, the concept is undoubtedly false. Out of the continuous stream of organically connected reality we catch glimpses of two elements, but one is no more cause of the other than the dog was the cause of the deer in the gallery.

What actually occurs is more as though, in watching an intermittently luminous electric discharge, we establish point after point in the course until we have interpolated elements enough to protract the curve of the constant-flowing discharge, itself not visible to us. We have plotted a curve of nature's uniformity and established the form of a part of the path of reality. Such is the work of science. Gradually a considerable part of some subordinate chain of events becomes filled in by our plotting, and a formula or 'law' for the observed uniformity is discovered. Within these limits, we say, the laws of cause and effect have been laid down. There is no objection to such use if we know exactly what is meant.

Even in logic, the convertibility of these terms is indicated by the expression, 'final cause,' where we mean the *effect designed to*

be produced. This usage is as true (and as false) as the other. The last portion of the trajectory exists as much for the first as the first does for the last.[3]

The practical mind becomes very impatient of such generalizations. A miner drills four six-foot holes in a shaft, and charges each of them with two sticks of giant powder, and places in each a fuse properly tamped, ending in a primer of detonating material. He connects the several fuses with wires, and the opposite ends of these wires are placed in the circuit of a powerful battery. After all precautions are taken, the circuit is closed, a current of electricity passes through the wires and in the primer meets resistance sufficient to produce heat, causing the primer to detonate with such violence as to explode the powder, and thus to break down several hundred pounds of quartz. What caused the breaking of the ore? None of the elements enumerated could have been omitted. All were part of a plan existing in the mind of the miner, but all were related to each other in chains of observed sequence. Any failure properly to comprehend these attributes (activities) of the materials used would have prevented the success of the operation.

We discover certain relations and avail ourselves of them, and then describe the uniformity we discover as a causal relation. It must also be observed that all so-called causal relation is reciprocal. One activity, x, may come into relation with various others, a, b and c, and the resultant is neither x nor a, b or c, nor yet a constant modification of x that could be represented by ax, bx or cx; it is rather a series of new activities, p, q and r. In other words, cause implies two activities and the result is something different from either.

This is not the usual form of describing cause, but a little reflection will prove it correct. All cause implies change and the elements of causation are dynamic. But change involves comparison, and less than two elements can not be compared.

All causal relation we said is reciprocal. It matters not whether the clapper strikes the bell, or the bell moves and strikes the clapper, or rather, in either case, both clapper and bell strike each other. The result, we say, is sound, but the result is also various other things quite as truly. A myriad molecular changes wrought into the inextricable fabric of reality stand in relation to the impact of bell and clapper.

One great difficulty in getting any clear idea of cause and effect is that there is no such thing as an example of simple cause and effect, and this betrays the falsity of the usual conception. A ball thrown against a wall rebounds at an angle of deflection determined

[3] Cf. Underhill, *Mind*, April, 1904.

by the angle of incidence. The wall diverted the ball, caused its change of course. What the wall did was to add a large number more to the already innumerable factors in the formula for the trajectory of the ball. One of the 'results' is expressed in conformity to a uniformity observed in nature which we call a law. Others we fail to observe or to estimate. What was the cause in this illustration, let us say of the change in the course of the ball? Was it the impenetrability of the wall, the elasticity of the ball, the particular angle in which the wall stood to the path of incidence of the ball, or the inertia or velocity of the latter?

It was long supposed that influence passes, in causation, from one thing to another, but this idea of an *influx physicus* has been given up as adding nothing new but difficulties. To say that one thing becomes an occasion for another is equally unintelligible.

Many first-rank philosophers (*e. g.,* Lotze) have abandoned the attempt to define causation, while admitting that it is a necessary postulate. It may be permitted to us to go further and suggest that causation as such can not be defined because it does not exist in the form of a plurality of causes. What does exist is such an indissoluble linking together of all realities in fixed relations as makes of the whole a complete organism, every part being implicate in every other. The complete organism is the 'ground' of all being, and is the only thinkable cause.

Our daily praxis discovers small segments of this continuity and reveals fixed relations therein, and, forthwith, describes a certain group as a necessary prior, or cause, of a certain other group of events. Our attempted interpretation of causation, while it relieves us from the responsibility of explaining every uniformity in phenomena by some special cause, or of evoking some inexplicable power or modulus or property of being as a general cause, does suggest two alternatives in our conception of the 'ground' of reality. These alternatives are somewhat as follows:

First. The world is something created in all of its varied complexity and set in motion by an infinite creative force, and what followed the creative act is the self-explanatory out-working of the mechanism. If we know what God knows and as completely as he knows, we could predict every occurrence as we now predict eclipses.

Second. The world is not a machine but is itself instinct with power, and all its parts fit because they grew together and belong together. If our knowledge were complete enough we could predict all that has been or is to be from the part which each element has in an organized whole.

The first of these statements is the doctrine of transcendence and the second that of immanence, or a better distinction is that which we

have used between mechanism and organism. In arriving at a satisfactory settlement, or in making a selection between the two, it is necessary to notice that what was called self-explanatory in the case of mechanism is by no means so. No matter how complete the mechanism and no matter how great the power imparted to it, it is not self-evident that the course it would pursue must be one rather than another. The mechanism must be perfectly adjusted, its materials must have certain properties, its forms must conform to certain adaptive imperatives, and all these characteristics belonged to the mechanism from all time and so could not be created, or else creative power has been added to it from some source. This can only be from the creator himself, for the world is supposed by definition to include all else. Thus the creator has added of himself to the world in creating it. Again, if power be applied in launching forth the universe, it must come from the world or from the creator. If derived from the creator (all other sources being excluded) this idea also means that the creator puts himself into his universe. But this destroys the idea of mechanism and gives us organism.

But, to defend at least the associated idea of transcendence, we may say, 'Yes; but not all of the creator is in our universe.' The reply is, that, by definition, the universe is all. A creator not creating is no longer a creator, and if he be creating, that created becomes, *ipse facto,* our universe, for a universe does not exist divided against itself. But certainly, it is objected, we can not understand that all of God is emmanent in his creation. No; only that all of God as creator is in his creation, and that to speak of a world created by his will and preserved by his power is to admit that creation is perpetual and continuous. That there may be other activities besides creation may be admitted, but the prayer, for example, 'Create in me a clean heart, O Lord' may suggest that there are numerous spheres of creative activity aside from those in which our cosmology is wont to find its orbit.

The world then may be described as an organism in which human beings live and move and, in common with all other existences, find their being. It is no accident that part fits with part any more than it is that the innumerable cells of the body cooperate in an organic unity and each bears the impress of the whole.

If one wishes to call the tie that so binds the universe together 'cause,' there is little objection. We may call gravitation the cause which insures the movement of the planets in their orbits, but we may be sure that when we fully understand the mysterious law of gravitation it will not be possible to dismember it from the organic whole of universal causation.

Thus far we have availed ourselves of metaphysical license in

treating of universal and absolute qualities as though we understood them. We must remember, however, that they are creations of our mind; necessary creations, it may be, but not elements of knowledge.

If we were called upon, and were able, at this point, to make a satisfactory definition of knowledge, our quest would end and the remainder of this inquiry would become unnecessary. For the present we may say that knowing is the appreciation of changes in experience in definite relation to each other and to the perceiving self. Knowledge refers both to the act (cognition) and content of knowing.[4]

Knowing lies at the base of all voluntary action. In all the Germanic languages the roots of the verbs 'to know' and 'to do' are similar or identical, *i. e.*, knowledge is power. Recently psychology has emphasized, perhaps extravagantly, the correlated fact that there must be an act of will in all knowing. In fact all expressions of subjectivity must be voluntary, otherwise they are not subjective.

We have defined reality as the union of subjective and objective, but this implies a curious fact, viz., that we do not know things as they are. Our realities are of our own making. Thinking is, as has been said, 'thing-ing it.' Things are not known as such but are inferences. Experience is the known, all else is inferred. The correctness of our knowledge will depend, first, on the uniformity of relation between experience and the objective reality; secondly, on the completeness of experience; and thirdly, on the certainty of our methods of inference.

Experience is the product of a reaction from without upon our sensorium, the latter reflecting in consciousness. If the experience arise from a light-wave, for example, we must, first, assume that when a wave of certain form, periodicity and velocity reacts upon the mind, it represents uniformly a definite objective validity, or is such validity. It is presumed to have definite correspondences and differences (relations) when compared with other objective phenomena. Secondly, we receive the impression through the medium

[4] Very often knowledge is defined as though it were simply that known, but this is only a portion of the extension of the term. Knowledge is, philosophically, the process of knowing and the content of the process. It has been defined as 'a representation of facts in sentient symbols' (Carus), 'a description of facts' (Kirchhoff). The latter use applies to stored knowledge in books or traditional information and the like, a sort of mental conserves. 'All knowledge on its subjective side is belief. To know a truth is to be assured of it. What the term knowledge implies more than belief is an objective fact, namely the adjustment and conformity of belief to reality or truth' (Sully). 'Activity is a fundamental property in conscious life' (Hoeffding).

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of delicate sensory apparatus (eyes, etc.), and each particular wave length is conveyed along certain nerve channels to points in the brain identical with the receptive points in the retina, so that this particular wave length (color) is discriminated each time it occurs. The accuracy of perception depends upon the perfection of this mechanism. But the mechanism is both imperfect and incomplete. We have no organ for perceiving ultra-violet or X-rays. We even perceive differences between colors very imperfectly—we are all more or less color blind—and, at best, very few out of the indefinite series of wave lengths and periods and forms are at all perceptible. This limitation is necesssary in order that we should analyze at all. The correspondence between the internal and external is very incomplete and only partially accurate. Thirdly, our methods of inference are such as are based on correspondences in *time, space* and *mode.* Time Kant defines as the necessary 'form' of our inner apprehension, as space is that of outer experience, *i. e.,* our own apprehension of our own acts must be in a relation of sequence, and our apprehension of experiences through the senses necessarily is referred in terms of extension. Mode refers to differences in kind resulting from analysis within our sensorium. Consciousness is differently affected by vibrations of different length and period, not because of any special reason why vibrations of one periodicity should produce one sensation rather than another, but because correspondences and interferences between the nodes of the stimulus curve and the complex curve of our vital organism vary with variations in the form of either trajectory.

Thus it is evident that all of the three necessary 'forms' of knowledge of external realities are of subjective nature and dependent upon the structure of the organ and, it may be, upon necessities of thought. Moreover, nothing is more certain than that none of these represents an external reality as such. Time, as time, has no existence apart from experience. To an infinite being time and space would be other than they are to us, if they could be supposed to exist at all. Mathematicians threaten us with the destruction of spatial relations, as we know them, by the introduction of a fourth dimension. Mode is valid for us, and it is necessary for the individual to determine its correspondence with the experience of other individuals before it can be assumed to be valid for them. This correspondence is the basis of all communication but it is only approximate. What I see and hear is not identical with what you see and hear under identical external conditions. If you are color blind and I have no ear for music, the difference is still more apparent, but is not more real.

The first limitation on knowledge, then, is its relativity, the

second its incompleteness, the third its errancy or uncertainty. We find ourselves, as thinkers, in a bad way. In the first place, we have no direct assurance that the knowledge we seem to have is a correct picture of reality; in fact, we know that it is not. We believe it to have only such constant correspondences to it as may serve our practical purposes. Secondly, the picture we do have is like a coarse newspaper half-tone, only a few points here and there are left to represent the infinite variety of light and shade in the original. Thirdly, using the same illustration, much of the objective reality was out of focus in our organism, and the print (reproduction) is so roughly made that many of the original distinctions are obliterated. We are to be congratulated that there remain enough elements of correspondence so that I can recognize it, and that my description of it can frequently be recognized by my neighbor when compared with his own mental image of the same phenomena.

Subjective idealism (Fichte) recognizing these limitations of knowledge, states that the perception of the world is simply the product of our creative faculty and that, outside of the cognitive spirit, this world of things has no existence, so that there is no such thing as an act of cognition, but only an act of representation.

But, without denying the subjectivity of cognition, we are helped by our discussion of organism to the conclusion that, since we and our cognitive apparatus are organic parts of the cosmos and have grown out of it, or rather, have grown in it, that which our cognition invariably does must have an invariable relation to what invariably is. It would be strange if this particular branch of the cosmic organism should bear fruit that would spring up into no likeness with the parent stem, however limited, however imperfect these correspondences may be. We are forced to believe that, so far as they do go, and with whatever accuracy they do act, our cognitive activities express fundamental correspondences with external validity. They are facts of experience and not phantasies.

Only on such assumption as this is science possible, and without it we might fail to find the inducement to carry out the obligations of daily life. To such conclusion as this Kant came in his practical reason after passing half a lifetime in the cheerless realm of pure reason, but it is not necessary to divorce pure reason from half (and the better half) of its necessities in attempting to follow out the other half to the logical conclusion. One would not wish to dwell forever on the cold side of the moon.

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DISCUSSION

IMAGE OR SENSATION

DR. GORE[1] has suggested that the distinction between the image and the sensation is one between different stages of abstraction. At the extreme end of this process lies the so-called pure sensation, at the other end lies the object within which the elements represented by the sensation and the image are both present; and on the line between these we have varying degrees. "The more he (the psychologist) seeks to isolate a phase of consciousness, to dissect it out of its context, to expose its true and pure essence, the more clearly does the sensational quality appear."[2] But Dr. Gore not only presents the sensation as the limit toward which psychological analysis moves, but also suggests its functional value. "If it be true that the sensational quality characterizes the more isolated phases of any experience, then it is clear that it locates the more discrepant and problematic features of a given situation. The discrepant and problematic features so located by sensation are isolated, not in the sense of being irrelevant, but in the sense of standing over against some desired or customary activity. They are obstacles in one form or another. Hence, they have all of the felt reality, all of the immediate presence, which goes with the sensational quality. It is an *organic* break or strain that comes to consciousness in the imperative form of a sensation."[3] Now this suggests at once Professor Dewey's definition of the sensation in functional terms: "Sensation as a stimulus does not mean any particular psychical *existence*. It means simply a function, and will have its value shift according to the special work requiring to be done. At one moment the various activities of reaching and withdrawing will be the sensation, because they are that phase of the activity which sets the problem, or creates the demand for the next act. At the next moment the previous act of seeing will furnish the sensation, being, in turn, that phase of the activity which sets the pace upon which depends further action. Generalized, sensation as stimulus is always that phase of activity requiring to be defined in order that a coordination may be completed."[4] Professor Dewey is here discussing the conception of stimulus immediately, rather than that of sensation, but the discussion leads up to this functional definition of sensation, which is evidently identical with that which Dr. Gore has in mind.

[1] THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, No. 16, p. 434.

[2] *l. c.*, 436.

[3] *l. c.*, 437.

[4] "The Reflex Arc Concept in Psychology," *Psychological Review*, Vol. III.

Dr. Gore's definition of the image is as follows: "The image is the content abstracted from past experiences in the form in which they are usually brought to consciousness to serve as means of dealing with problematic features located by sensations. At the same time, this abstracted content has a perceptual or ideational setting which helps to constitute it as an image. . . . Could you rule out the ideational or perceptual setting, your image would leave off being an image. It would become sensational in quality and value."[5] The image, functionally defined, is then a content which in terms of past experience has served as a solution of the problem set in the form of the sensation. Except that this statement implies that the image is but one of the solutions involved in past experience in the presence of such problems as those implied in the sensations, it would correspond to the functional definition which Professor Dewey gives for the 'response.' "Just as the discovery of the sensation marks the establishing of the problem, so the constitution of the response marks the solution of this problem. At one time, fixing attention, holding the eye fixed, upon seeing and thus bringing out a certain quale of light is the response, because that is the particular act called for just then; at another time, the movement of the arm away from the light is the response. There is nothing in itself which may be labelled response. That one certain set of sensory quales should be marked off by themselves as 'motion' and put in antithesis to such sensory quales as those of color, sound and contact, as legitimate claimants to the title of sensation, is wholly inexplicable unless we keep the difference of function in view. It is the eye and the ear sensations which fix for us the problem; which report to us the conditions which have to be met if the coordination is to be successfully completed; and just the moment we need to know about our movements to get an adequate report, just that moment, motion miraculously (from the ordinary standpoint) ceases to be motion and becomes 'muscular sensation.' On the other hand, take the change in the values of experience, the transformation of sensory quales. Whether this change will or will not be interpreted as movement, whether or not any consciousness of movement will arise, will depend upon whether the change is satisfactory, whether or not it is regarded as a harmonious development of a coordination, or whether the change is regarded as simply a means in solving a problem, an instrument in reaching a more satisfactory coordination. So long as our experience runs smoothly we are no more conscious of motion as motion than we are of this or that color or sound by itself. To sum up: the distinction of sensation and movement as stimulus and response respectively is not a distinction which can

[5] *l. c.*, 437–8.

be regarded as descriptive of physical events or existences as such. The only event to which the terms stimulus and response can be descriptively applied are to minor acts serving by their respective positions to the maintenance of some organized coordination. The conscious stimulus or sensation, and the conscious response or motion, have a special genesis or motivation, and a special end or function.''[6]

In this statement of Professor Dewey's there is no especial effort to define or, indeed, locate, the image. The interest gathers entirely around the conceptions of stimulus and response as the elements that make up the so-called reflex-arc. However it is evident that a statement that does define sensation in functional terms and response as well, must have a place in it for so vital a concept as the image. To return now to Dr. Gore's definition, we recall that it is expressed in terms of the response of a past experience to such a problem as this sensation represents. In any case Dr. Gore assumes that the image is to be found on the response side of the coordination. The possibility that suggests itself within such a situation as that which Professor Dewey describes, besides the stimulus-sensation and the response-movement, is the series of inhibited responses which are involved in the fact that the situation is a problematic one. There are present tendencies to conflicting activities which, instead of being executed, mutually check each other. Besides these checked tendencies there are the tentative efforts to solve the problem which may arise as hypotheses, so to speak. An instance of these may be found in the familiar efforts to recall a name. Besides the inhibited efforts to speak the name, which register themselves in the form that Professor James calls the fringe surrounding the aching void, there are the successive names that arise, one after the other, perhaps only to be rejected. Now these names, arising in this fashion, are typical instances of images as that term is customarily used in psychology. They distinguish themselves from the sensation or sensuous content in that this sensuous content is something that is more or less definitely defined as a feel of some sort—auditory, visual or kinæsthetic—which is the core, so to speak, of the image. In Professor Dewey's terminology it is the condition of the solution of the problem, or in Professor James's it is the feel of the void, or rather of its boundaries through which shoot the trial efforts.

Another typical situation within which the image arises is that given in the concept. Some sort of image with sensuous content it is admitted must accompany any concept however abstract this may be, but in this situation, as distinguished from that just defined above, the image phase is of relatively little importance. The

[6] *l. c.*

difference in the image in these two situations is, functionally, readily explained. In the first case, the completion of the process of recognition is dependent upon a sensuous presentation of a certain content. The act can not take place until the sensuously constituted stimulus is integrated. The actual face of the person whom one is trying to remember, or the actual articulation of the sought-for word, is requisite to the recognition. In the case of the concept, on the contrary, the cognitive process is carried out by an already organized response for which the sensuous integration of the image is unnecessary—or is necessary only if the concept is held by itself apart from the experience which it interprets, in which case the image is but the surrogate of the object. Between these two extremes lies the so-called process of perception, with the image in varying degrees, as the cognitive act is of the nature of sensuous recognition or of conceptual interpretation. I will discuss later the nature of the structure of the image, especially from the point of view of the Wundt-Stout concept of disposition.

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REVIEWS AND ABSTRACTS OF LITERATURE

Zur Ethik des Gesamtwillens. Eine socialphilosophische Untersuchung. RUDOLF GOLDSCHEID. Erster Band. Leipzig, O. R. Reisland, 1902. 552 pp.

The title of this rather bulky volume gives no very clear indication of its contents. Only the latter part of the book is concerned directly with the ethics of the collective will, but preliminary to this is a lengthy discussion of the relation between mind and body, and of the origin of the categorical imperative, followed by a polemic against the theistic view of the world with special reference to the alleged shortcomings of Protestant and Roman Catholic theology and the inconsistencies of the state church in Germany. The chapters directly referred to by the title contain an arraignment of modern political institutions, especially as found in Germany, and a plea for their modification in the direction of an international socialism.

Such unity as the book possesses is due to the author's philosophical system, which is based upon the 'empirocriticism' of Avenarius. It is an attempt to unite the Kantian theory of knowledge and ethics with the standpoint of materialistic evolution. The result reached is a monism of mind and body which is opposed alike to the dominant theory of parallelism and to that of interaction. The main argument against theology is that it is dualistic and does not accept the monistic theory of mind and body; while the parallelistic cleft between mind and body, it is

hinted, is responsible for that between theory and practice, and so underlies the inconsistencies of a statecraft which teaches altruism through an established church, and yet in war and commerce practices individualism.

The defense and exposition of the Avenarian theory will be more interesting to the philosophical reader than the somewhat remote applications made of it in the spheres of religion and politics. Ethics, it is held, must rest upon psychology, and psychology can only advance with the progress of its two members, physiology and theory of knowledge. If psychology is to be a science, it must trace the causes of mental activities, and it is not enough to resolve complex processes into their simpler elements; these in turn must be referred to their physiological conditions. The position is maintained that mental processes are immediately dependent in a one-sided way upon the central nervous system. To defend this view from the charge of materialism recourse is had to an idealistic theory of knowledge which declares that body and brain exist only as mental representations, the causes of which are, and must remain unknown. It then becomes necessary to harmonize the two apparently irreconcilable propositions that spirit is a product of nature and that nature is a product of our spirit, and only one way is open to an 'exact psychology,'—to conceive nature and spirit, or mind and body, as a unity. This conclusion is negatively supported by a critique of parallelism, which separates what is united in experience, and of interactionism, which occupies the standpoint of a pre-Kantian dualism and is in conflict with the law of the conservation of energy. The monistic view, it is further declared, is not metaphysical, but is based solely upon pure or immediate experience.

Objection may easily be made to this solution of the psychophysical problem, but it has dialectically much to commend it. A monism which can assert indifferently that mind is a product of matter, that matter is a product of mind, and that the two are one and the same, has the obvious advantage that if one part of the system be attacked its defender can retire to another. The author is enabled virtually to assert the mutual dependence of mind and body against the parallelists, and to deny it against the interactionists. Mind and body are two when the author wishes to show that the psychical can only be explained by the physical; they are one when he wishes to avoid the difficulties of parallelism and interaction. The outcome of this way of looking at the problem is a confusing *communicatio idiomatum,* an excuse for which is sought in the relativity of our knowledge (p. 31), but relativity should hardly be used to cover logical inconsistencies.

The difficulties of combining Kantian idealism with a materialistic psychology which asserts the complete dependence of mind upon brain, multiply as the argument proceeds. To say, in general, that a part of consciousness, the idea (*Vorstellung*) of the brain, is the seat of the whole is, the author admits, absurd (p. 39), and he appeals to the knowledge we have of our fellow men. But here again we are met with the absurdity equally apparent of saying that my idea of my fellow man's brain is the seat of his consciousness. If, however, we mean by brain in this case the cause of my idea, we are trespassing upon the forbidden ground of meta-

physics, for 'from the contents of an idea (*Vorstellung*) nothing can be concluded as to its cause' (p. 39). The author, of course, sees the difficulty here, but thinks that the two-fold progress of physiology and of theory of knowledge has placed us in a 'circle' from which, in the nature of the case, there can be no escape.

Doubt may be suggested as to whether the Avenarian theory of 'pure experience,' at least as expounded in the present volume, really remains upon the ground of 'pure experience.' The binding together of consciousness and brain activity, whether in the form of mutual dependence, of one-sided dependence, of mere concomitance or of identity, is at best only an inference—not a matter of 'immediate experience.' I have, as is admitted, no immediate experience of the peculiar molecular activities of my own brain which are associated with consciousness, nor, when appeal is made, as it is (p. 40), to my fellow man, have I any immediate experience of his consciousness—supposing his brain to be open to observation. Ruling out telepathy, which is not here in question, I can only infer consciousness from observed bodily movements. A certain relation between mind and brain may be legitimately inferred, but as soon as we assert this relation, we have already left the ground of 'immediate experience.' The author naturally finds it difficult to steer between the scepticism as to the mind-and-body problem which he deprecates (Chap. IV.) and the metaphysics which he condemns. He believes that his theory is a legitimate extension of Kantian principles, but Kant claimed it as an advantage of his system that the psychophysical problem which had so long troubled philosophy was at last shown to lie outside the limits of human knowledge.

In his treatment of ethical problems the author likewise attempts to unite the Kantian with the modern evolutionary standpoint, and here again his treatment is rather confusing. The categorical imperative is spoken of as a 'certainly demonstrable psychological fact,' but it is to be explained 'without mystical additions'; and some, if not all, the suggestions made as to its origin seem inconsistent with its peculiar character. When asked how the categorical imperative can evolve, the author gives several answers: (1) It is postulated with reference to the action of one's fellows. What I wish to be done, others, I feel, ought to do. (2) It arises when the necessity of means to ends is considered. I ought to do what will carry out my fixed purposes (p. 88). (3) What is subjectively intensely desired takes on the form of objective good—although it is admitted that men desire many things which possess not the slightest worth (pp. 96, 99). (4) Intellect is the best weapon in the struggle for existence, but developing intellect carries with it as a by-product, it is said, developing morality. Yet it is admitted that this development supplies only the formal conditions of morality. The possession of intellect gives the individual the capacity to act according to ends. "But morality is formally nothing else than action according to an appointed end" (p. 310). It is not clearly shown how the peculiar nature of the moral end can be the necessary result of a developing intelligence. (5) It is further suggested, in an interesting chapter on the 'double root of morality,' that the law of

altruism is imposed upon the governed in the interests of the ruling classes. Altruism is thus both the natural result in all men of a developing intellect and the artificial result in the governed of the overweening egoism of the rulers. Altruism is thus both independent of egoism and dependent upon it.

The author's mind is apparently divided between the desire to retain the Kantian moral imperative in his system and the desire to explain morality wholly in terms of pleasurable feeling. It seems doubtful whether the foundation for an 'exact ethics,' the possibility of which is discussed in a later chapter, has been laid.

Mr. Goldscheid shows a wide acquaintance with philosophical literature, and writes in a fluent style, often with needless repetition. The book contains brief but instructive criticisms of the systems of Schopenhauer and Nietzsche, and a short chapter on free-will, whose assumption in the individual, it is argued, would destroy the responsibility of the state. The evils of modern capitalism and militarism are dwelt upon at length in the closing chapters.

In at least fifteen different places the author promises to return to the question under discussion in a second volume, which has not yet been published. Among the points to be there elucidated are the relation of ethics to religion and of determinism to responsibility, the economic basis of the struggle for existence, the conditions of moral progress, the dangers of under-population, the practicability of an international parliament to regulate production, and the woman question. If this promise is fulfilled, it is to be feared that the second volume will not be free from a certain diffuseness and lack of unity of which the reader of the present volume has a right to complain.

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Morale et Biologie. D. PARODI. *Revue Philosophique,* August, 1904, pp. 113–135.

This brilliant and well-written article is a criticism of the modern tendency toward a biological conception of ethics which would make that discipline only the practical application to life of principles determined by the natural sciences, in particular, by the biological sciences. The ideal of life is taken as perfect adjustment of organism to environment, and the necessary conditions for its realization are made matters of scientific research. The whole problem of conduct is simplified by being reduced to terms of general hygiene. Of this general tendency the recent work by Metchnikoff, 'Études sur la nature humaine,' is taken by M. Parodi as a brilliant specimen and subjected to a searching criticism.

The subtitle of this book, *Un essai de philosophie optimiste,* indicates the attitude of the author. He is an optimist, however, not in the older sense of one for whom the world is the best possible, but in the characteristic modern meaning of one who recognizes everywhere the imperfections of life but sees in science the hope of their removal. These imperfections are of three classes, disease, old age, the fear of death, and all

indicate a radical lack of adjustment to environment, an unnatural condition of life. The hair, the teeth, the digestive organs, the vermiform appendix, the reproductive organs and instincts, are all ill adapted to their purpose even in the prime of life, and, in addition, we have the peculiar ills of old age and the growing fear of death. Modern medicine promises to change all this by its prevention of, and control over, disease, as well as by its modification of the general habits and ideals of life. A rational life will do away with the evils of old age and allow us to live out the natural span of our lives, while, with a true understanding of the meaning and naturalness of death, we may in time develop an 'instinct of death' which will supplant the present insistent and irritating instinct of life. If death is a natural and inevitable element in our experience there seems no reason why there should not be thus developed a corresponding adaptation to it. Thus, under the guidance of science, man may be restored once more to that peaceful harmony with his environment which has been so long disturbed by his irrational attempts at a rational control of life and may lead once again a life of natural instinct.

Two points of criticism are suggested in M. Parodi's discussion of this conception, the ability of modern science to produce this physical perfection and the adequacy of this as a solution of the real moral problem. Adaptation to environment involves the fixity of that environment, but such fixity is found neither in nature nor in society. Disease depends largely upon time, place and social conditions, and so long as these change there can be no permanent peace. The old evils are no sooner vanquished than new ones arise. Moreover, to speak of attaining a natural old age, or of completing the natural cycle of human life is unmeaning from the naturalistic point of view, and implies a discarded teleology. For science, the natural is the actual. As to the development of an instinct for death, such a result is possible only for an already enfeebled organism and would be out of the question for the healthy and vigorous life developed through this scientific training.

But even if we admit the ability of science to perfect our physical life by the removal of these disturbing elements, there is a yet more radical difficulty in the theory. Man, by virtue of his reason, is never a completed product, a fixed quantity, capable of being permanently adjusted and satisfied, and hence the biological ideal of perfect adjustment is impossible of attainment. The life of instinct and untroubled peace is an outgrown stage in his development and he is condemned or chosen to a life of unceasing aspiration and endeavor, to a constant unfixing of his adjustment. To demand a rational return to instinct, is to demand of reason its own negation. Again, we may ask whether the happiness resulting from such an equilibrium is the natural end of man, and analysis of conduct seems to show that it is not, but that he seeks those things in which his happiness is found rather than the happiness itself. Nor can biology decide between the happiness of the individual as his end or that of the species. The struggle for existence is a struggle of individuals, yet nature is prodigal of these and careful only for the species. To the modern scientist the individual is but an incident in the evolution of the world, and

whether he asserts as the end of conduct the happiness of the one or of the whole, his choice is a matter of caprice. Science can neither show the identity of the individual good with that of the race, nor has it grounds for rational choice between the two.

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The Practical Reason in Aristotle. F. MELIAN STAWELL. *International Journal of Ethics,* July, 1904.

Did Aristotle posit an ultimate principle as the end and standard of all man's varied activities, or did he deny the connection of ethics and metaphysics, and the regulation of conduct by the conception of an absolute good? The disagreement of interpreters on this point is the occasion for another attempt to clear up the matter. Confusion has arisen in part because of the plan of the 'Nicomachean Ethics,' in which a succession of inadequate statements are presented, with the view of leading up to a more precise definition; and is in part due to a misunderstanding of the nature of Aristotle's criticism of Plato, which concerns, not the search for an absolute standard, but the nature of the standard offered by Plato, its aloofness from all that we want to do. And when Aristotle says that in ethics it is not possible to reach precision, he seems to mean simply that ethical philosophy can not go into detail, but must content itself with laying down general principles, subject to modification in particular instances. Furthermore, when Aristotle says that the noble deed is chosen for its own sake, he does not thereby exclude an ultimate end, in the light of which the right proportion which characterizes noble action may be constituted; in the last book he expressly sets himself the task of determining the exact nature of this mean in view of such an ultimate principle. To this end he introduces a discussion of the faculties in man which can reach it. We have first the distinction between the theoretical and the practical reason, the latter distinguished from the former by having an aim, by treating of what is to be done. The union between them is, however, intimate, for the speculative reason knows the distinction between good and evil, though it never lays down any dictum as to what is to be done. These two faculties both appear on two levels, on a low level as scientific knowledge and prudence respectively; on a higher level, as reason in the great sense, that which grasps the ultimate principles of all things, and as that higher wisdom which deals with not only what is good for man, but with what is good in itself. The supreme end which this last faculty grasps is contemplation, not an arid intellectual exercise merely, but such a contemplation as is promoted by friendship, and constitutes a heightened consciousness of life akin to love,—an *amor intellectualis Dei et hominum.* This is the ultimate ideal, which can not be attained in its fulness under our hampering conditions of mortality. The lower manifestations of reason are temporary and secondary, and the work of prudence will disappear under conditions so ideal as to leave no room for doubt and deliberation, when action will be replaced by activity.

Such an interpretation has the advantage of presenting Aristotle's

theory as a consistent whole, while on any other theory it becomes, at the best, dispersive and incomplete, and at the worst, a tissue of confusion.

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JOURNALS AND NEW BOOKS

AMERICAN JOURNAL OF PSYCHOLOGY. April, 1904. Vol. 15, No. 2. *The Soul—A Study of Past and Present Beliefs* (pp. 121–200): L. D. ARNETT. – "As progress is made in any line of industry it is well to take an account of stock." There is a lack of a definite understanding of the word 'soul' as used by psychologists and theologians. One object of this study is to present views of both professions. The following are some of the topics treated in the study,—some primitive ideas of the soul; the language development of the term; beliefs concerning the forms of the soul, animate and inanimate; soul localization; the number of souls; Greek ideas of the soul; the theological conceptions; and the soul as referred to in philosophical systems. The concluding part of this study is to appear in the next number. *General Intelligence Objectively Considered* (pp. 201–294): C. SPEARMAN. – Advocates a Correlational Psychology; reviews and criticises methods of previous researches. "Irrelevancies must be eliminated" before correspondence can be found between abilities. Some of these that the author sought to eliminate through a series of experiments were practice, age, sex, zeal. Four series of experiments were carried on with school children as observers. The tests were in Sound, Light and Weight discrimination, and the results were correlated with teachers', pupils', and others' estimate of the general intelligence of the observers. "On the whole we reach the profoundly important conclusion that *there really exists a something that we may provisionally term 'General Sensory Discrimination' and similarly a 'General Intelligence,' and further that the functional correspondence between these two is not appreciably less than absolute.*" A comparison of the ratios of relationship given by this author as existing between abilities in studies and those given by Thorndike in his more recent work on 'Mental and Social Measurements' is interesting. *Literature. Notes.*

July, 1904. Vol. 15, No. 3. *A Preliminary Study of the Psychology of the English Sparrow* (pp. 313–346): JAMES P. PORTER. – A number of adult English sparrows were tested in some interesting ways to determine their intelligence. The author concludes that the English sparrow profits readily by his own and perhaps by the experience of fellows. His rate of learning is rapid, and his adaptability is very great. *The Soul—A Study of Past and Present Beliefs* (pp. 347–382): L. D. ARNETT. – (Conclusion of article in preceding number.) Review of the psychological theories of the soul, with a report of a study of the present beliefs about the soul based on data collected by means of a questionnaire. "However analytic the psychologist may be he is still hopeful, optimistic and char-

itable in his beliefs. The soul of religion, psychology and philosophy should be one, representing as they do two sides of the same phenomenon. It is poor pedagogy to present to the student ideas along one line of thought that are destructive to a related system of ideas." *Facial Vision: A Supplementary Report with Criticisms* (pp. 382–390): ROBERT MACDOUGALL. – This article presents some experimental facts disagreeing with those reported by Dresslar. *Experimental Studies in Mental Deficiency: Three Cases of Imbecility (Mongolian) and Six Cases of Feeblemindedness* (pp. 391–446): F. KUHLMANN. – This research is illustrated by photographs of the cases. The subjects were tested wth regard to memory, practice (throwing at a target and tapping on reaction key), attention and effort (tapping, associating and discriminating), attention span, and a domino discrimination test. The article contains bibliographical references and a bibliography of about two pages. *Literature. Notes.*

REVUE DE METAPHYSIQUE ET DE MORALE. September, 1904. *La Révolution Cortésienne et la Notion Spinoziste de la Substance* (pp. 755–798): L. BRUNSCHVICG. – M. Couchoud's claim that Spinoza simply summarized clearly the Cartesian doctrine of Substance is unjustified. Spinoza applied Descartes' method more strictly, and freed the conception of Substance from ambiguity and barrenness. Neo-platonism is strong in Spinoza. *Sur une Classe remarquable de Raisonnements par Réduction à l'Absurde* (pp. 799–809): G. VAILATI. – A number of *reductiones ad absurdum* are given to illustrate the nature of this process, from Plato down to symbolic logic. *Les Principes des Mathématiques* (pp. 810–844): L. COUTURAT. – Lines, planes, etc., in Geometry are continuous collections in one or more dimensions. Dimensions are defined as single, double, etc., series. The straight line of descriptive geometry is an asymmetrical relation; that of projective geometry is symmetrical. (*à suivre.*) *Etudes Critiques: Une nouvelle Tentative de la Réfutation de la Géometrie générale* (pp. 845–856): G. LECHALAS. – M. Delsol's refutation of non-Euclidean geometry, though a marvelous piece of ingenuity, is fallacious. *Questions Pratiques: Sur l'Idée de Patrie* (pp. 857–892): F. MARGUET. – One's country signifies the ideal of a type of individuality. War contradicts any such ideal; war is folly. Individuals can realize their type only in peace. *Supplément:* La Philosophie dans les Universités. Livres Nouveaux. Revues et Périodiques. Fondation d'une Kantgesellschaft.

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NOTES AND NEWS

THE International Congress of Arts and Science at St. Louis closed on September 25. There were few changes in the programme of the departments of philosophy and psychology as originally announced and printed in No. 15 of this JOURNAL. Of the foreign scholars expected, Professors Windelband and Ebbinghaus did not come. Their places on

the programme were taken by Professor William A. Hammond, of Cornell University, who spoke on the relation of logic to psychology and metaphysics, and by Professor Robert MacDougal, of New York University, who spoke on the relations of experimental psychology. An adequate estimate of the work of the congress can not be made until the proceeding are published. That it was an exceptional success is the unanimous opinion of those who attended.

THE two hundredth anniversary of the death of John Locke is to be commemorated at the Johns Hopkins University, Baltimore, by the department of philosophy and psychology, on November 1, at 5 P. M. The program includes addresses on various phases of Locke's work and influence. Among the speakers are Principal C. Lloyd Morgan, Professor Woodbridge, of Columbia University; Professor Sterrett, of the George Washington University; Dr. William Osler, of Baltimore; Commissioner Harris, of Washington, and others. The exercises will be public and those who wish may also hear Professor Morgan's lecture on 'Comparative Psychology' at the same place on November 2, at 4:30 P. M.

DR. JAMES WARD, professor of moral philosophy and logic, at Cambridge University, who gave a course of lectures at the University of California and one of the addresses at the International Congress of Arts and Science, has returned to England after giving addresses and being entertained at Princeton, Johns Hopkins, Wesleyan, Cornell and Columbia Universities.

A DEPARTMENT of experimental psychology has been established in the Western University of Pennsylvania, under the charge of Edmund B. Huey, A.B. (Lafayette), Ph.D. (Clark). Two good-sized rooms and a dark-room are being fitted up for the new department, and an appropriation has been made to meet the initial needs for apparatus and books.

AT the recent Cambridge meeting of the British Association, the newly established Psychological Society held a special meeting in conjunction with the section of physiology. The section of physiology is now definitely to include in its title the two studies of physiology and experimental psychology.

COURSES of Lowell lectures are being given by Principal C. Lloyd Morgan, of University College, Bristol, on 'The Interpretation of Nature,' and by Dr. Pierre Janet, of the College de France, on 'Hypnotism and Allied Phenomena.'

PROFESSOR M. M. PARKS, head of the department of psychology and pedagogy of the Georgia Normal College, has been appointed acting president during the year's leave of absence of President Choppel.

PROFESSOR O. A. THAXTON, formerly of Mercer University, Georgia, has recently been appointed to a position in the department of psychology at the State Normal College of Pennsylvania.

PROFESSOR ALEXANDER B. COFFEY, formerly of the University of Washington, has been appointed lecturer in education in the University of Wisconsin.